Growth

Global Hawk to soar this spring

BY JENNY SHEARER, Californian staff writer
jshearer@bakersfield.com | **Thursday, Jan 15 2009 09:53 PM**

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Images:

Henry A. Barrios/ The Californian

The U.S. Air Force color guard presents the colors at the unveiling of the Global Hawk high-altitude, long-endurance science aircraft at NASA's Dryden Flight Research Center at Edwards Air Force Base.

Henry A. Barrios/ The Californian

Dee Porter, chief pilot for the Global Hawk, explains how the pilot will control the Global Hawk from the flight operation room at NASA's Dryden Flight Research Center at Edwards Air Force Base.

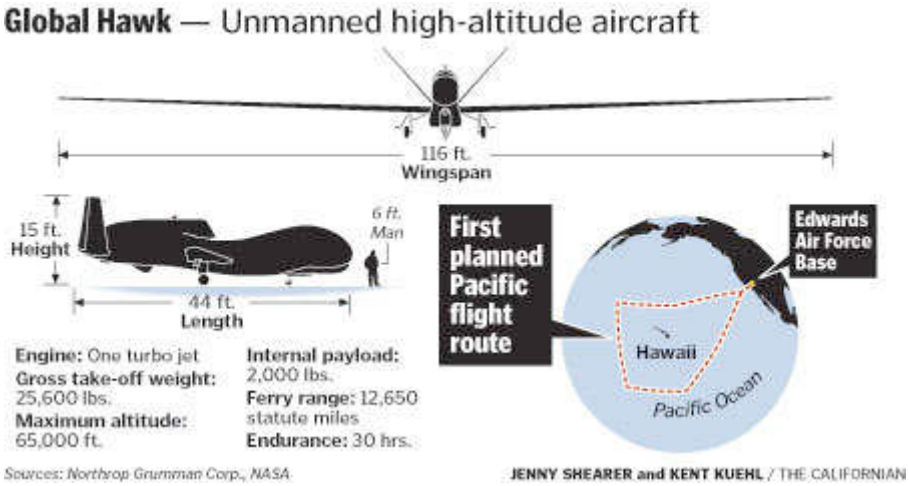
Henry A. Barrios/ The Californian

Kevin L. Petersen, director of the NASA Dryden Flight Research Center at Edwards Air Force Base, speaks during the unveiling of the Global Hawk Thursday morning.

Henry A. Barrios/ The Californian

Robert Herman, a scientist with Jet Propulsion Laboratory, speaks passionately about the Unmanned Aerial System Laser Hygrometer that will be one of the instruments used to research water vapor measurements in high altitudes using the newly acquired Global Hawk unmanned aircraft.

Graphics



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EDWARDS AIR FORCE BASE — The next generation of airborne science research debuted at the NASA Dryden Flight Research Center Thursday.

The Global Hawk is a high-altitude, long endurance unmanned aircraft system.

It can stay in the air for about 30 hours and reach 65,000 feet, and its long-range capabilities will help scientists validate data from satellites, understand climate change and track hurricanes.

The initial six missions soaring above the Pacific Ocean may start in March, and those flights will take off and land at Dryden. They are the first nonmilitary hops the Global Hawk has performed.

Inside, the plane with the bulbous, whalelike nose is loaded with specialized instruments, both remote and "in situ," that require an entire team of scientists to operate and interpret.

Technology includes sampling capabilities that could suck air into a bottle, allowing scientists to analyze hundreds of gases, said Paul Newman, project scientist. He'll plan the flights and manage a team of really smart people.

Newman calls the Global Hawk a "satellite/aircraft hybrid." Unlike a satellite that passes over a specific target once or twice a day, the plane can capture data every second or so, which yields "unbelievable operations."

The planes are from Northrop Grumman Systems Corp. of Rancho Bernardo. They arrived at NASA Dryden in September 2007 because the U.S. Air Force had newer production models to use. Because they are prototypes, NASA wasn't charged for them, according to Northrop Grumman. The instrumentation and sensors, though, could run about $2 million to $4 million per year, depending how many missions are flown, said Kevin Petersen, Dryden's director.

Global Hawk is at Dryden because of its partnership with the defense contractor, and the two entities will share the ground control station, maintenance facilities and the two NASA Global Hawks. The National

Oceanic and Atmospheric Administration and Department of Energy are involved in research, and so are other NASA flight centers.

David Fahey, a project scientist at NOAA, said Wednesday the planes can help acquire temperature information about the Arctic.

"We think that region is warming unduly from human-caused climate change. Because of its remoteness, we really lack quality data in terms of No. 1, really knowing what's going on, (and) No. 2, having the data to test your theories about why it's changing," he said.

Storm tracking is another asset the Global Hawk brings.

"Hurricane scientists would like to know more about what's going on in thunderstorms, early stage and late stage — where it's going to go, what it's going to do when it gets there," Fahey said.